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Update on Pest Management and Crop Development
May 29, 2018

COMING EVENTS

	43°F	50°F
Current DD* accumulations		
(Geneva 1/1-5/29):	670.0	404.2
(Geneva 1/1-5/29/2017):	669.9	345.4
(Geneva "Normal"):	681.3	383.1
(Geneva 1/1-6/4, predicted):	830.5	522.7
(Highland 1/1-5/29):	829.8	493.3

Upcoming Pest Events – Ranges (Normal +/- Std Dev):

American plum borer		
1st flight peak	601-967	329-585
Black cherry fruit fly 1st catch	702-934	380-576
Black stem borer		
1st flight subsides	807-1248	444-781
Codling moth 1st flight peak	563-991	309-585
Dogwood borer 1st catch	754-1243	438-755
European red mite		
summer egg hatch	737-923	424-572
Obliquebanded leafroller		

1st catch.....	797-980	463-589
Oriental fruit moth		
1st flight subsides	829-1103	484-681
Pandemis leafroller 1st catch	755-892	437-518
Peachtree borer 1st catch	781-1320	447-816
Pear psylla 1st summer		
generation adults present	737-885	428-526
Redbanded leafroller		
1st flight subsides	604-891	338-553
Spotted tentiform leafminer		
1st flight subsides	678-946	376-573
White apple leafhopper		
1st brood adults 1st catch	679-1041	380-694

*[all DDs Baskerville-Emin, B.E.]

PEST FOCUS

Geneva: San Jose Scale 1st adult catch today, 5/29.

TRAP CATCHES (Number/trap)

Geneva

	5/17	5/21	5/25	5/29
Green Fruitworm	0.5	0.0	0.5	0.0
Redbanded Leafroller	85.0	78.0	55.0	59.0
Spotted Tentiform LM	13.5	9.0	8.0	9.5
Oriental Fruit Moth	90.0	81.0	70.0	31.0
Codling Moth	0.0	0.5*	19.0	41.0

Lesser Peachtree Borer	0.0	0.5*	25.0	36.5
San Jose Scale	-	0.0	0.0	266.0*

Highland (Peter Jentsch)

	5/7	5/14	5/21	5/29
Green Fruitworm	0.0	0.0	0.0	0.0
Redbanded Leafroller	153.5	132.0	40.5	20.0
Spotted Tentiform LM	42.5	17.0	10.5	7.5
Lesser Appleworm	0.0	0.0	0.0	7.0*
Oriental Fruit Moth	52.0*	139.5	129.0	73.5
Codling Moth	0.0	0.5*	7.7	65.0
San Jose Scale	-	0.0	31.0	5,693!

(*on 5/18)

* 1st catch

ORCHARD RADAR DIGEST

[H = Highland; G = Geneva]:

Roundheaded Appletree Borer

RAB egglaying begins: May 30 (H)/June 3 (G). Peak egglaying period roughly: June 18-July 2 (H)/June 24-July 7. First RAB eggs hatch roughly: June 14 (H)/June 19 (G).

Dogwood Borer

First DWB egg hatch roughly: June 16 (H)/June 23 (G).

Codling Moth

Codling moth development as of May 29:

1st generation adult emergence at 40% (H)/ 24% (G) and 1st generation egg hatch at 0% (H)/(G).

1st generation 3% egg hatch expected: May 31 (H)/June 4 (G) = target date for first spray where multiple sprays needed to control 1st generation CM.

Obliquebanded Leafroller

1st generation OBLR flight, first trap catch expected: June 1 (H)/June 8 (G).

Oriental Fruit Moth

1st generation 55% egg hatch and first treatment date, if needed: May 29 (G).

San Jose Scale
1st generation SJS crawlers appear: June 12 (H)/June 18
(G).

[Section: DISEASES]

Weekly Apple Scab and Blossom Blight Updates for NY (5/28 to 6/1/18)

(Kerik Cox & Katrin Ayer, PP&PMB, Geneva)

Below are apple scab and blossom blight predictions for NY apple regions based on the NEWA disease forecast system (http://newa.cornell.edu/index.php?page=apple-diseases). Information is kept concise. Alerts will also be posted to Twitter @FruitPathology with updates occurring throughout the week, which would allow notifications to send to mobile device. The various outputs are explained below the tables.

APPLE SCAB

[Ascospores may all be released at this time; below are warnings for any late spores or secondary infections.]

Week of 5/28/18*	**Hudson Valley**	**Wayne**	**Niagara**	**Champlain Valley**	**Finger Lakes**
Infection Predicted	5/28	5/31-6/1	5/31-6/1	5/28-29	5/31-6/1

* predictions are regional, the model works best under local conditions. Always check weather and crop stage before making a management decision.

Infection predicted: An infection event is predicted for the date listed. If a multi-day infection event is predicted, a range of dates for the infection is listed.

BLOSSOM BLIGHT

[Bloom may be over in your area; below are predictions for any late blooms.]

Week of 5/28/18*	**Hudson Valley**	**Wayne**	**Niagara**	**Champlain Valley**	**Finger Lakes**
Infection Risk	High (5/29-6/1)	High (5/29-6/1)	High (5/29-6/1)	High (5/30-6/1)	High (5/29-6/1)
Highest EIP	198	226	225	228	275
Highest 4-Day DH	985	1118	1104	956	1303

* predictions are regional, the model works best under local conditions. Always check weather and crop stage before making a management decision.
** for late-blooming cultivars

Infection risk:

- **"Low"**: EIP and 4-day DH accumulation at/below 75 and 300, respectively; **"Moderate"**: EIP and 4-day accumulation between low and high-risk values; **"High"**: EIP and 4-day DH accumulation at or above 100 and 400, respectively with moisture predicted
- **"Date"**: The date of highest risk for the week listed. If there is a high risk of infection over a range of dates, a range is listed.

Highest EIP & 4-Day DH: The highest EIP value and 4-day DH accumulation for the week listed.

[Section: INSECTS]

PARADE SEASON
(Art Agnello, Entomology, Geneva; ama4@cornell.edu)
[Box text: FLAG WAVING]

Like most regular biological events, insect development responds positively to warmer conditions, so anticipating that this week's forecast of 80-plus degree weather will provide the needed push, management decisions for most major pests will tend to need addressing on a fairly predictable schedule. Although this week's temperatures probably won't

translate into a lot of management decisions having to be made all at once, the following is a long-view update of some of the traditional crop protection scenarios during this period. Dates in parentheses, where present, are the mean date of occurrence in Geneva, according to our recent records.

Plum Curculio (May 24 - scars present)

Curcs have only so much egg-laying activity programmed into their behavior, and it's directly related to the temperature. The warmer the post-petal fall period is, the quicker they finish, so the long-term forecast will be instrumental in determining how many cover sprays might be needed after petal fall to adequately protect the region's orchards until the ovipositing is finished. Most WNY orchards probably will be receiving their petal fall spray this week, while those in the Hudson Valley should have been well under way. Peter Jentsch noted the appearance of the first PC stings in his May 21 blog (see below), and we should soon begin to notice a few instances of injury from this pest in western NY; the **Apple IPM Insect Models Website** (http://newa.nrcc.cornell.edu/newaModel/apple_pest) puts curculios just barely into their egglaying activity. For apples, if you additionally have **Rosy Apple Aphid**

colonies active in your trees, consider an application of a material having good activity on both species.

European Apple Sawfly

Traditionally confined to the eastern half of the state, but steadily making westward progress in recent years, the adults start laying eggs on or near newly set fruitlets at petal fall, so the plum curculio applications will do double duty against this pest as well.

Obliquebanded Leafroller (June 8)

We have yet to catch the first obliquebanded leafroller adult in western N.Y., but this should occur very soon in the Hudson Valley, as populations there are usually at least a week ahead of us, so don't be surprised to begin seeing them in the near future. Depending on the location, larvae should be able to be found now in various stages of development. This week or the next would therefore be an advisable time to be sure a pheromone trap is hung in problem apple blocks, to fix the date of first emergence in your specific area. Recall that we recommend sampling at 600 DD (base 43°F) after the first adult catch, to determine the need and timing for treatment. For problem orchards with a reliable OBLR history where sampling is generally not needed, egg hatch (which equates to the first

occurrence of susceptible larvae) occurs more or less 350 DD after the 1st adult catch. It pays to keep an eye on the daily highs and lows for your area if you are doing your own trapping, as it's likely that our "normal" first sampling date of July 5 won't turn out to be necessarily appropriate this year; once again, the **Apple IPM Insect Models Website** can help you zero in on these events in your specific area. In orchards not too removed from petal fall and containing large larvae, an application of Intrepid, Proclaim, Rimon, Grandevo, or a B.t. product (e.g., Agree, Dipel, Deliver, Javelin) at this time will help diminish the population for better management during the summer. Although Altacor, Delegate, or Exirel are also very effective against OBLR, it would be advisable to save these big guns for the summer generation larvae, which are more of a direct threat to the developing fruits.

Stone Fruit Aphids

Although green peach aphid is not always a serious pest every year, colonies of these greenish, smooth-looking aphids are likely to occur in peach blocks during this period, along with their damage, which causes curled leaves that may turn yellow or red in severe cases. The young aphids begin to hatch about the time of peach bloom and remain on the trees for 2–3

generations, until early summer, when they seek other hosts (mainly vegetable truck crops). Green peach aphids suck the sap from the new fruits and twigs, and are also found on plum, apricot, cherry, and many ornamental shrubs. These insects are difficult to control; the recommended options, where needed, include Actara, Admire, Assail, Beleaf, Grandevo and Movento. Lannate is an alternative, but possibly less effective choice. Applications are recommended before excessive leaf curling occurs, in order to maximize the spray's effectiveness. Also, keep an eye out for black cherry aphid in your cherry trees after shuck fall. If colonies are building up on the foliage, recommended materials include Admire, Assail, Beleaf, Exirel, Grandevo, Lorsban, Movento, Sevin, and pyrethroids such as Asana, Baythroid, and Warrior. Pre-mixes labeled for this use include Endigo, Leverage, Minecto Pro, Voliam Flexi and Voliam Xpress/Besiege.

Cherry Fruit Flies (June 16)

It's too early for catches of adults on sticky board traps, but because of the zero tolerance in cherries for insect damage or presence, it's prudent to begin sprays in your cherries soon after shuck split (for this pest as well as for curculio). Imidan (tart cherries only), Sevin, Diazinon, Assail, Actara, Delegate or the pyrethroids are

all effective treatments. Sevin will also control black cherry aphid.

Lesser Peachtree Borer (May 24)

The first adult showed up in Geneva on May 21, but the sustained flight didn't occur until the 25th. Remember to get your trunk and scaffold sprays on peaches and cherries during the next couple of weeks if borers are a problem in your blocks and you are electing this approach. A better and preferred alternative is Isomate-PTB Dual for pheromone disruption. Now is a good time to think about hanging the ties (150-250/acre will disrupt both species -- Peachtree Borer appears about mid-June in our region; use the higher rate where pressure is more severe). This pest increases the severity of *Cytospora* canker infections in peaches and is often found within the canker; by feeding in the callus tissues, it interferes with the tree's natural defenses against the disease. Infestations can be determined by the presence of the insect's frass, which resembles sawdust, in the gum exuded from the wound. In peaches, you can use Asana, Baythroid, Lorsban (all formulations), Pounce, or Warrior for this application (or pre-mixes such as Endigo, Gladiator, Leverage, or Voliam Xpress/Besiege). In cherries, use Asana, Baythroid, [Lorsban (tarts only),

as a trunk spray ONLY; do not spray the fruit], Pounce, Warrior, Endigo, Gladiator or Voliam Xpress/Besiege, and observe the proper PHIs for these respective materials. Check the labels of all products for the recommended target area, where applicable (trunk vs. foliar).

European Red Mite

Mite populations should be starting to build with the onset of summer temperatures, and adults may already be present, which means that they'll be laying summer eggs that will hatch into potential problems before long. We did not have much favorable pre-bloom weather for early season oil or miticide applications this year; if you failed to take advantage of any opportunities that did occur before bloom, it's not too late to use one of the preventive materials such as Savey/Onager, Apollo, Agri-Mek, Nealta, Portal, or Zeal in problem blocks or where you may have noted ERM eggs.

In situations where European red mite pressure or the crop's sensitivity to them haven't necessarily justified an early season treatment with any of the above options, this is the time of year when a summer oil program also might be considered as an alternate

preventive approach, particularly considering this species' slow start during the spring. Our field research trials have shown the effectiveness of using a highly refined oil in a seasonal program to control mites throughout the summer. Some examples of these products are PureSpray Spray Oil 10E, BioCover UL, or PureSpray Green (all from Petro Canada), Stylet-Oil (JMS Flower Farms), and Omni (an ExxonMobil product formulated using Orchex 796 and distributed by Helena); others are available, such as Damoil (Drexel), Saf-T-Side (Brandt Consolidated) and Mite-E-Oil (Helena), although we haven't tested all brands.

Our approach is to make three applications, on a preventive schedule, immediately after the petal fall period, before mite populations have a chance to build. The first application can be any time from petal fall to 1–2 weeks later, followed by two additional sprays at 10–14-day intervals. The oil is not concentrated in the tank, but rather mixed on the basis of a rate per 100 gallons of finish spray solution; in most cases, we recommend 100 gal per acre. A rate of 1–2 gal/100 should maintain control of most moderate populations. Don't apply without leaving at least a 10–14-day interval before or after a captan spray, or an application of any thinning materials.

San Jose Scale (June 19 - 1st crawlers)

Minute SJS adult males emerge in the spring from beneath scale covers on the trees, usually following petal fall, and mate; catches of the adult males have jumped this week in the Hudson Valley, and the first adults in Geneva were noted today. The females produce live crawlers within 4–6 weeks of mating; these make their way to new sites and insert their mouthparts into the tree, secreting a white waxy covering that eventually darkens to black. SJS infestations on the bark contribute to an overall decline in tree vigor, growth, and productivity. Fruit feeding causes distinct red-purple spots that decrease the cosmetic appeal of the fruit. Insecticidal sprays are most effective when directed against the first generation crawlers, specifically timed for the first and peak crawler activity, which are usually 7–10 days apart.

In the Geneva area, first crawler emergence has tended to occur sometime around mid-June. If and when a treatment against this stage is needed, Esteem 35WP is one option. It should be applied at 4-5 oz/acre at first crawler emergence; a low rate (0.25% or 1 qt/100) of a highly refined summer oil (see above) has

been shown to improve penetration and, therefore, control. Additional products showing control efficacy include Centaur (except Nassau and Suffolk Counties), Movento (which must be mixed with an organosilicone or nonionic spray adjuvant), Sivanto Prime, Venerate and Assail. Other options include Imidan, Admire, or pre-mixes such as Endigo, Leverage, or Voliam Xpress/Besiege. These applications should also be effective against **White Prunicola Scale**, which has gotten to be increasingly common of in our area, in apples as well as peaches.

Oriental Fruit Moth (May 2)

We're generally calling biofix May 7 in Geneva this year, with various later dates found in western NY (May 11 west of Rochester, May 8-15 in Wayne Co.), although cold temperatures resulted in a temporary nosedive in adult flight since then. In problem blocks (i.e., those with a history of more than 1–2% fruit infestation over the past 10 years), the first spray against the first larval brood in apples is recommended at 350–375 DD (base 45°F) from biofix, which corresponds with 55–60% hatch. The records as of today show the DD accumulation in Geneva to be 416, and 330 DD for the Highland Lab (May 7 biofix). This would put us well into the window in the state's earliest

sites for a timely treatment in apples. If you need something specific against OFM in your petal fall sprays, Altacor, Assail, Avaunt, Delegate, Exirel, Intrepid, Grandevo and Rimon are recommended options in apples, and Altacor, Assail, Delegate, Exirel, Asana, Danitol or Warrior in peaches. The granulosis virus product Madex, which has efficacy against both codling moth and OFM, can be a valuable supplement to seasonal management programs for both these pests. Mating disruption (available products include Isomate-CM/OFM TT, OFM TT or CM/OFM Mist; Checkmate OFM-F or Puffer CM-OFM) is a recommended complement to any management program, and although it is still not too late to use them, these dispensers should be deployed this week, since the coming summer temperatures will certainly kick the moths out of their spring stasis.

Pear Psylla

These insects should also have been making steady progress, and the warming temperatures will eventually result in the production of summer nymphs. Particularly if you weren't able to get an oil spray on before bloom, populations of 1–2 per leaf would be an indication of the need for a prudent application of Agri-Mek at this time; alternatively, Actara, Admire, Asana,

Assail, Centaur, Danitol, Delegate, Esteem, Exirel, Movento, Nexter, Portal, Sivanto Prime, Warrior, Voliam Flexi and Agri-Flex also have varying degrees of effectiveness against this pest, usually negatively correlated with frequency of past use.

Spotted Wing Drosophila

Normally not considered to be a significant threat to tree fruits, SWD caused major problems in sweet and (particularly) tart cherry plantings last year, owing to its occurrence much earlier than expected, along with the spray calendar required for acceptable control, which is more aggressive than many growers are accustomed (or inclined) to using. Most programs require weekly applications, and the options comprise several pyrethroids (Mustang Maxx, Danitol, Asana, Lambda-Cy), as well as Delegate, Entrust, Exirel, and Grandevo. The SWD blog site (see following article) contains links to quick guides for product selection in various tree fruits and berry crops.

HOT BLOGS WITH RELISH

(Art Agnello, Entomology, Geneva; ama4@cornell.edu)

[Box text: SUMMER READING]

In addition to the standard assortment of seasonal fruit alerts, notices, e-blasts and newsletters offered to the NYS fruit industry, there has been an increasing selection of locally relevant blog sites that are available for additional perspectives on pest and disease management in fruit, in response to the perpetual quest for new information sources by varied audiences. Following are a few of the notable blogs, which you may be familiar with or yet to discover, either via random browsing or direct subscription:

- The Jentsch Lab: [http://blogs.cornell.edu/jentsch/]. Steadfastly produced by Peter Jentsch (Entomology, Hudson Valley Research Lab, Highland; pjj5@cornell.edu), this site provides thoroughly documented observations on fruit insect occurrence, development, research, and supporting references, with updates posted on a frequent basis.
- Spotted Wing Drosophila trapping network: [http://blogs.cornell.edu/swd1/], overseen by Julie Carroll (NYS IPM Program, Geneva; jec3@cornell.edu), this blog reports the findings of an army of volunteers trapping in 36 sites across 24 counties. First finds are reported by county, along with advisories on control treatments, summaries of management tactics, workshop announcements, and voluminous support resources.

- Biocontrol Bytes: [https://blogs.cornell.edu/biocontrolbytes/], from Amara Dunn (Biocontrol Specialist, NYS IPM Program, Geneva: arc55@cornell.edu), who offers the following description: 'Would you like to learn more about biological control and how to use it successfully? New York State Integrated Pest Management biocontrol specialist Amara Dunn has a new blog - "Biocontrol Bytes". Short articles are posted approximately once a month to share information, answer stakeholder questions, and connect readers to other relevant resources. Subscribe using the green button on the right side of the page in order to receive email updates when new articles are posted.'
- NYS IPM Program: [https://blogs.cornell.edu/nysipm/]. Contributors include a number of IPM Program staff writers; this blog features articles of interest across all commodities and audiences, including some fruit topics of potential current and future import; e.g., a May 23 entry on the Spotted Lanternfly, which has not yet been detected (alive) in New York State, but forewarned is forearmed...

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Editor: A. Agnello
Dept. of Entomology, NYSAES
630 W. North St.
Geneva, NY 14456-1371
Phone: 315-787-2341 FAX: 315-787-2326
E-mail: ama4@cornell.edu
Online at
<http://www.scaffolds.entomology.cornell.edu/index.html>